

Work Order ID 146951

146951

Page 1

Monday, June 06, 2016 12:47:13 PM

Item ID: D4463-13 Accept *N900040100* Setup Start *NS1*
 Revision ID: Stop *NS2*
 Item Name: Tank Bottom
 Start Date: 5/18/2016 Start Qty: 2.00 *2* Cust Item ID:
 Required Date: 5/24/2016 Req'd Qty: 2.00 *2* Customer:
 Reference:

Approvals: Process Plan: U Date: Tooling: Date: Run Start *NR1*
 QC: Date: SPC (Y/N): Date: Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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Draw Nbr	Revision Nbr
D4463	D

105		0.00							DAS 13 9-89
105						2	JUN 08 2016		
Purchasing	5 ⁰⁰								
Purchasing	Memo	0.00							
	ISSUE PO 32646								
	CUT PER DRWG D4463 REV.D								

115	Receive & Inspect for Damage & Mat'l Certs	0.00							
115									
Packaging									
Packaging	Memo	0.00							

125	QC6- Inspect dimensions to drawing	0.00							
125									
QC									
Quality Control	Memo	0.00							

2x SP 16-7-13
 16-07-22 PD

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :				MRB (QS1042) Approval	
Description Work Order Deviation				Disposition				Completed By	
								Lead hand / Supervisor Approval Verification	
								QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐				
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____							
Misidentified ☐	Past Due ☐								

Work Order ID 146951***146951***

Page 2

Monday, June 06, 2016 12:47:13 PM

Item ID: D4463-13

Accept

N900040100

Setup Start

NS1

Revision ID:

Stop

NS2

Item Name: Tank Bottom

Start Date: 5/18/2016 Start Qty: 2.00

2

Cust Item ID:

Required Date: 5/24/2016 Req'd Qty: 2.00

2

Customer:

Reference:

Approvals:

Process Plan: _____

Date: _____

Tooling: _____

Date: _____

Run Start

NR1

QC: _____

Date: _____

SPC (Y/N): _____

Date: _____

Stop

NR2Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

130

Bend as per dwg

0.23

DAS
30
9-89

(2)

JUL 26 2016

130

Brake NC

Memo

0.26

Brake NC

140

QC6- Inspect dimensions to drawing

0.00

DAS
38
9-89

(2)

JUL 28 2016

140

QC

Memo

0.00

Quality Control

150

Chemical Conversion Coat per QSI005 4.1

0.00

DAS
34
9-89

(2)

2016/07/29

150

HandFinish

Memo

0.18

Hand Finishing

BEB

DQA: _____ Date: _____

**WORK ORDER NON-CONFORMANCE / UPDATE**

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By _____ Lead hand / Supervisor Approval Verification _____ QC / QA Coordinator Approval _____		
Description Work Order Deviation				Disposition					

Root Cause		FAULT CATEGORY					
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐		
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐		
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐		
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐		
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐		
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐		
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐		
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐		
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐		
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐		
Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____					
Misidentified ☐	Past Due ☐						

1 46951

Monday, June 06, 2016 12:47:13 PM

N900040100

Setup Start *NS1*

Stop *NS2*

Start Date: 5/18/2016 **Start Qty:** 2.00 ***2***

Cust Item ID:

Required Date: 5/24/2016 **Req'd Qty:** 2.00 ***~***

Customer:

Reference:

Run Start *NR1*

Approvals: _____ **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____

Stop ***NR2***

QC: \ Date: SPC (Y/N): Date:

**Insp.
Stamp**

0.00

160

QC

Memo

0.02

Quality Control

JUL 29 2016

Identify as per dwg & Stock Location:_____

0.00

170

Packaging

Memo

0.02

Packaging

LOCATION: WA003

**DAS
6
9-89**

AUG 02 2016

QC21- Final Inspection - Work Order Release

0.00

180

QC

Memo

0.20

Quality Control

**DAS
21
9-89**

AUG 04 2016

**DAS
21
9-89**

AUG 02 2016

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval 		
Description Work Order Deviation				Disposition					
								Completed By	
								Lead hand / Supervisor Approval Verification	
						QC / QA Coordinator Approval			

Root Cause				FAULT CATEGORY			
Environment ☐	☐ No Re-verification	Pressure/Forced ☐		Temperature/Cure ☐		Power Loss/Surge ☐	
Design ☐	☐ Operator	Bending ☐		Set-up ☐		Folio/Program ☐	Positioned Wrong ☐
Doc/Data ☐	☐ Offset/Setup	Centre Not Concentric ☐		BOM/Route ☐		Grain ☐	Outside Dimensions ☐
Equip/Tooling ☐	☐ Supplier	Cracks ☐		Broken/Damage/Defect ☐		Weld ☐	Over/Under tolerance ☐
Handling/Pre ☐	☐ Training	Crimp/Kink/Ripple/Wave ☐		Inspection Incomplete/Unqualified ☐		Wrong Stock Pulled ☐	Part Incorrect ☐
Material ☐	☐ Use for Testing	Cuffs ☐		Contamination ☐		Out of Sequence ☐	Part Lost/Missing ☐
Internal Transport ☐	☐ Poor Information	Crushing ☐		Countersink ☐		Off-set ☐	Part Moved ☐
Tribal Knowledge ☐	☐ Rushing	Heat Treat ☐		Cut Too Short ☐		Mislabeled ☐	Drawing ☐
LOA ☐	☐ Product Improvement	Wave/Twist in Tube ☐		Instructions Incomplete/Unclear ☐		Fit/Function ☐	Finish ☐
Substation ☐	☐ Process Improvement	Marks/Chatter ☐		Drill Holes ☐		Misaligned/off center ☐	Misread ☐
Past Expiry Date ☐	☐ Manufacturing Process	OTHER : _____					
Misidentified ☐	☐ Past Due						

Picklist Print

*Monday, June 06, 2016 12:47:12 PM

Page 1 / 1

Work Order ID: 146951

146951

Parent Item: D4463-13

D4463-13

Parent Item Name: Tank Bottom

Start Date: 5/18/2016

Required Date: 5/24/2016

Start Qty: 2.00

Required Qty: 2.00

Comments: IPP REV:A 11.11.22 NEW ISSUE DD VERF:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D4463-13P		Purchased	No				Each	0.0000		2			
D4463-13P									**				
tank bottom													
M6061T6S.063		Purchased	No			100	sf	746.4000	2.748	5.785263			
M6061T6S 063									**				
6061-T6 .063 Sheet													

2x SP/6-7-13
DAS 13
AUG 02 2016

Location	Loc Qty	Loc Code
MAT021	410.4	
M133511	2.8	
M134377	4.9	
M134830	402.7	
TPI	336	
M134496	192	
M134604	144	

✓

DQA: _____ Date: _____



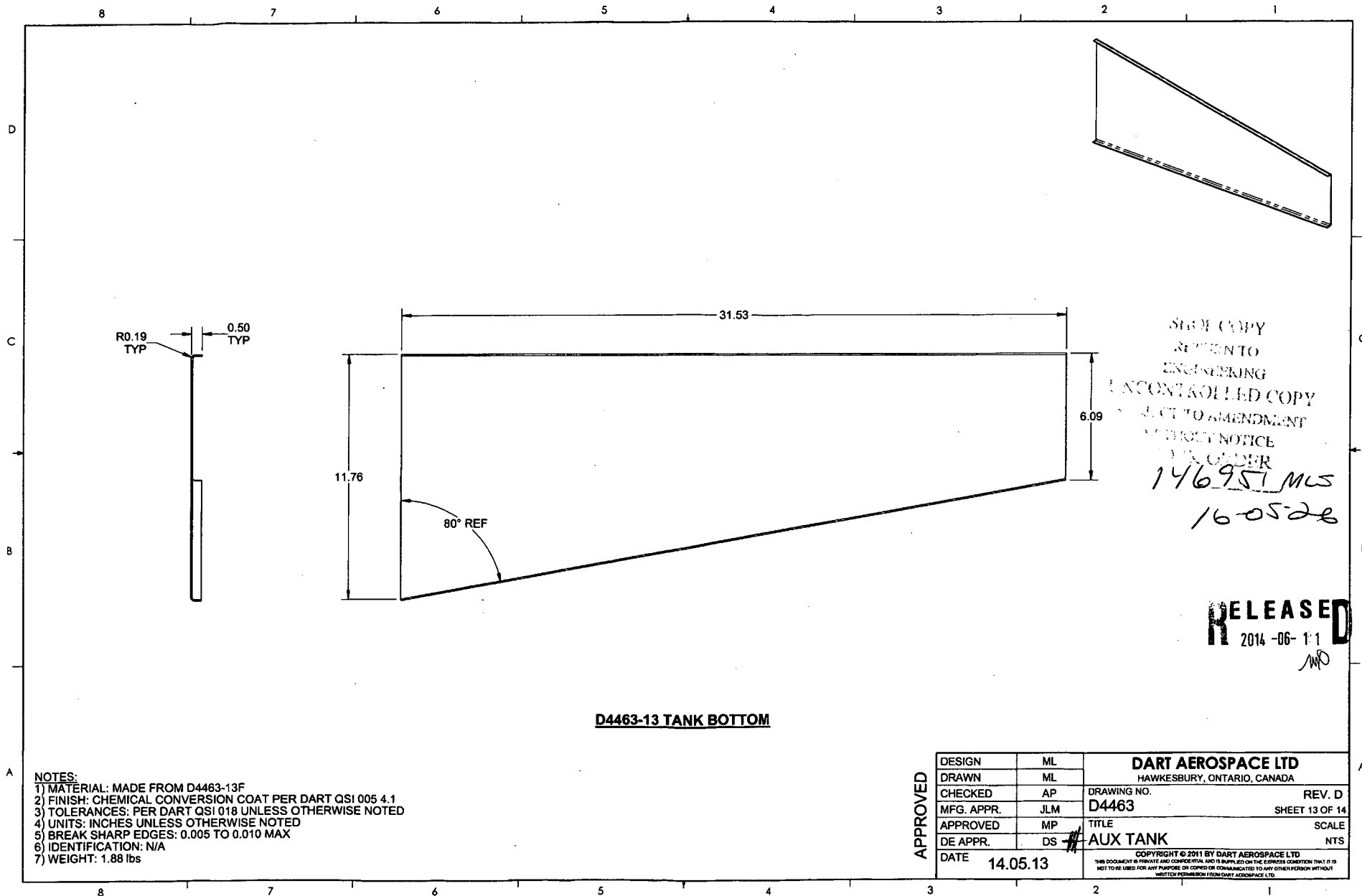
WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval 		
Description Work Order Deviation				Disposition					
								Completed By	
								Lead hand / Supervisor Approval Verification	
								QC / QA Coordinator Approval	

Root Cause				FAULT CATEGORY							
Environment	☐	No Re-verification	☐	Pressure/Forced	☐	Temperature/Cure	☐	Power Loss/Surge	☐	Positioned Wrong	☐
Design	☐	Operator	☐	Bending	☐	Set-up	☐	Folio/Program	☐	Outside Dimensions	☐
Doc/Data	☐	Offset/Setup	☐	Centre Not Concentric	☐	BOM/Route	☐	Grain	☐	Over/Under tolerance	☐
Equip/Tooling	☐	Supplier	☐	Cracks	☐	Broken/Damage/Defect	☐	Weld	☐	Part Incorrect	☐
Handling/Pre	☐	Training	☐	Crimp/Kink/Ripple/Wave	☐	Inspection Incomplete/Unqualified	☐	Wrong Stock Pulled	☐	Part Lost/Missing	☐
Material	☐	Use for Testing	☐	Cuffs	☐	Contamination	☐	Out of Sequence	☐	Part Moved	☐
Internal Transport	☐	Poor Information	☐	Crushing	☐	Countersink	☐	Off-set	☐	Drawing	☐
Tribal Knowledge	☐	Rushing	☐	Heat Treat	☐	Cut Too Short	☐	Mislabeled	☐	Finish	☐
LOA	☐	Product Improvement	☐	Wave/Twist in Tube	☐	Instructions Incomplete/Unclear	☐	Fit/Function	☐	Misread	☐
Substation	☐	Process Improvement	☐	Marks/Chatter	☐	Drill Holes	☐	Misaligned/off center	☐	Turning Sequence	☐
Past Expiry Date	☐	Manufacturing Process	☐	OTHER : _____							
Misidentified	☐	Past Due	☐								



SHIP COPY
 RETURN TO
 ENGINEERING
 UNCONTROLLED COPY
 SUBJECT TO AMENDMENT
 WITHOUT NOTICE
 146951 MWS
 16-05-28

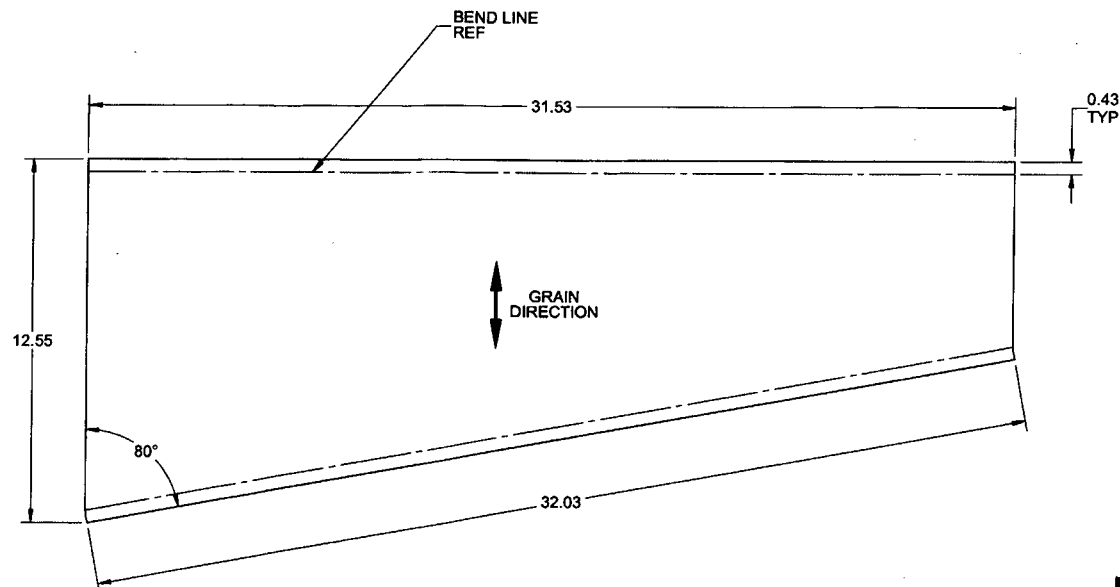
RELEASED
 2014-06-11
 MPO

D4463-13 TANK BOTTOM

- NOTES:**
- 1) MATERIAL: MADE FROM D4463-13F
 - 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
 - 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
 - 4) UNITS: INCHES UNLESS OTHERWISE NOTED
 - 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
 - 6) IDENTIFICATION: N/A
 - 7) WEIGHT: 1.88 lbs

APPROVED

DESIGN	ML	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	ML		
CHECKED	AP	DRAWING NO.	REV. D
MFG. APPR.	JLM	D4463	SHEET 13 OF 14
APPROVED	MP	TITLE	SCALE
DE APPR.	DS	AUX TANK	NTS
DATE	14.05.13	COPYRIGHT © 2011 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD	



D4463-13F FLAT PATTERN

RELEASED
2014-06-11

NOTES:

- 1) MATERIAL: 6061-T6/T62 ALUMINUM SHEET, 0.063 THICK
PER QQ-A-250/11 OR AMS-QQ-A-250/11
OR AMS 4025 OR AMS 4027 OR ASTM B209
REF DART SPEC M6061T6S.063
- 2) FINISH: N/A
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: N/A
- 7) WEIGHT: 1.88 lbs

APPROVED

DESIGN	ML	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	ML		
CHECKED	AP	DRAWING NO. D4463	REV. D SHEET 14 OF 14
MFG. APPR.	JLM	TITLE	SCALE
APPROVED	MP	AUX TANK	NTS
DE APPR.	DS		
DATE	14.05.13	COPYRIGHT © 2011 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	



Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID PO32646

Purchase Order Date 6/8/2016

PO Print Date 6/8/2016

Page Number 5 of 12

Order From :

TPI INDUSTRIES INC.
148 RUE GOODFELLOW
DELSON, QUEBEC J5B 1V4
CANADA

VC-TPI001

Ship To : DART AEROSPACE LTD
1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
CANADA

Contact Name

Vendor Phone

450-633-0484

Ship To Contact

Ship To Phone

Ship Via:

Ship Acct:

Buyer

Customer POID

Customer Tax #

Terms

Currency

FOB

10127-2607

Net 30

CAD

Destination-Collect

11 D4463-7P

Tank Fwd End

6/22/2016

Yes

6/22/2016

2.00

Each

\$5.80

\$11.60

CUT AS PER DWG D4463-7 REV. D
B146961
MATERIAL 6061-T6 SHEET .063

Line Total:

\$11.60

12 D4463-13P

tank bottom

6/22/2016

Yes

6/22/2016

2.00

Each

\$5.00

\$10.00

CUT AS PER DWG D4463-13 REV. D
B146951
MATERIAL 6061-T6 SHEET .063

SP/6-7-13

Line Total:

\$10.00

13 D4463-1P

tank bottom

6/22/2016

Yes

6/22/2016

2.00

Each

\$45.00

\$90.00

CUT AS PER DWG D4463-1 REV. D
B146773
MATERIAL 6061-T6 SHEET .063

SP/6-7-13

Note:

6/8/2016

TPI Waterjet cutting follow up sheet

wc100131

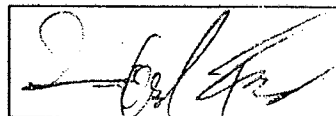
machine hours	1227h
diamond hours	157h
mixing tube hours	6h
TAJ calibration	13-06-2016

7/0. 3264/6

customer po	part #	Qty	lot #	date done	cut by	quality spot check	Note
dart 32646	d4925-1	18	see mill test	08-Jul-16	GR	Jonathan Lessard Gabriel Rioux	add .002 to the .25 and (26) hole
dart 32646	d4462-3	2	see mill test	08-Jul-16	GR	Jonathan Lessard Gabriel Rioux	add .002 to the .128 hole
dart 32646	d4463-1	2	see mill test	08-Jul-16	GR	Jonathan Lessard Gabriel Rioux	add .001 to the .098 and the .206 hole
dart 32646	d4463-7	2	see mill test	11-Jul-16	GR	Jonathan Lessard Gabriel Rioux	
dart 32646	d4463-13	2	see mill test	11-Jul-16	GR	Jonathan Lessard Gabriel Rioux	

→ SOME ARE
OVAL

Opérateur



SP 16-7-13

Superviseur

